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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LEE, PATRICK J	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/725,494	MOULI, CHANDRA
	Examiner	Art Unit
	Patrick J. Lee	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-81* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 21, 26-27, 45-46, 64, & 78 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,547,074 to Hinoda et al.

With respect to claim 1, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a mesh optical filter positioned over the photoconversion device for passing light of a specific wavelength to photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films (36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 21, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a first and additional mesh optical filter positioned over the photoconversion device for passing light of a specific wavelength to

photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films (36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 26, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a plurality of mesh optical filters positioned over the photoconversion device for passing light of a specific wavelength to photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films (36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 27, Hinoda et al disclose the transmission band of 440, 445 nm, which would fall in the passage of blue light.

With respect to claim 45, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a plurality of mesh optical filters positioned over the photoconversion device for passing light of a specific wavelength to photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films

(36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 46, Hinoda et al disclose the transmission band of 440, 445 nm, which would fall in the passage of blue light.

With respect to claim 64, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a mesh optical filter positioned over the photoconversion device for passing light of a specific wavelength to photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films (36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 78, Hinoda et al disclose a color sensing device comprising: substrate (1) as a semiconductor substrate (see column 3, lines 2-4); photodiodes (11, 12) as a photoconversion device formed within the substrate (1); dielectric layer (35) formed over photoconversion device (11, 12); and interference filters (31-34) comprising metal films (36-37) as a plurality of mesh optical filters positioned over the photoconversion device for passing light of a specific wavelength to photoconversion device (11, 12). Hinoda et al disclose the thicknesses of metal films (36-37) as controlling the transmission of a specific wavelength (see column 4, lines 26-38).

With respect to claim 79, Hinoda et al disclose the transmission band of 440, 445 nm, which would fall in the passage of blue light.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-20, 22-25, 28-44, 47-63, 65-77, & 80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,547,074 to Hinoda et al.

Hinoda et al disclose the device as described in the discussion of claims 1, 21, 26-27, 45-46, 64, & 78-79.

With respect to claim 2, Hinoda et al does not explicitly disclose apertures, but such would be obvious to one of ordinary skill in the art in order to give the metallic layers (36, 37) the ability to pass light through.

With respect to claims 3-4, the modified Hinoda et al does not explicitly state the use of a CMOS or CCD image sensor, but such would have been obvious to one of ordinary skill in the art because of the ability to capture images accurately while providing for low manufacturing cost.

With respect to claim 5, the modified Hinoda et al discloses the vacuum evaporation as a method for depositing the metal layer.

With respect to claims 6-7, the metal layers are not disclosed to have the thicknesses claimed, but such would have been obvious to one of ordinary skill in the

art in order to give the metal layers the transmissivity possible to allow a certain wavelength to pass through.

With respect to claim 8, the modified Hinoda et al discloses the use of silver or aluminum for the metal films (see column 3, lines 26-27).

With respect to claims 9-11 & 13-16, the modified Hinoda et al does not explicitly disclose the apertures as such, but such would have been obvious to one of ordinary skill in the art because such would allow for a specific transmissivity of light.

With respect to claim 12, the modified Hinoda et al discloses the transmission of peak wavelengths in the visible spectrum (see column 4, lines 31-36).

With respect to claims 17-19, the modified Hinoda et al does not explicitly disclose the passing of non-visible light, infrared light, or near-infrared light, but such would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would be able to adjust the thicknesses of the films and dielectric layers in order to adjust the peak wavelength transmitted.

With respect to claim 20, the modified Hinoda et al disclose the filter made of silver or aluminum (see column 3, lines 26-27).

With respect to claim 22, Hinoda et al does not explicitly disclose apertures, but such would be obvious to one of ordinary skill in the art in order to give the metallic layers (36, 37) the ability to pass light through.

With respect to claim 23, the modified Hinoda et al discloses the vacuum evaporation as a method for depositing the metal layer.

With respect to claim 24, the metal layers are not disclosed to have the thicknesses claimed, but such would have been obvious to one of ordinary skill in the art in order to give the metal layers the transmissivity possible to allow a certain wavelength to pass through.

With respect to claim 25, the modified Hinoda et al disclose the metal layer to be made of silver or aluminum (see column 3, lines 26-27).

With respect to claim 28, the modified Hinoda et al does not disclose the wavelength transmitted to be in the cyan, magenta, or yellow light region, but such would have been obvious to one of ordinary skill in the art because such would allow for imaging with that specific wavelength.

With respect to claim 29, the use of a Bayer pattern is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for randomization of different color filters.

With respect to claim 30, the modified Hinoda et al disclose the filter made of silver or aluminum (see column 3, lines 26-27).

With respect to claims 31 & 34, the modified Hinoda et al discloses the vacuum evaporation as a method for depositing the metal layer.

With respect to claims 32-33, the metal layers are not disclosed to have the thicknesses claimed, but such would have been obvious to one of ordinary skill in the art in order to give the metal layers the transmissivity possible to allow a certain wavelength to pass through.

With respect to claims 35-36, the modified Hinoda et al does not explicitly state the use of a CMOS or CCD image sensor, but such would have been obvious to one of ordinary skill in the art because of the ability to capture images accurately while providing for low manufacturing cost.

With respect to claim 37, the modified Hinoda et al does not explicitly disclose apertures, but such would be obvious to one of ordinary skill in the art in order to give the metallic layers (36, 37) the ability to pass light through.

With respect to claims 38-44, the modified Hinoda et al does not explicitly disclose the apertures as such, but such would have been obvious to one of ordinary skill in the art because such would allow for a specific transmissivity of light.

With respect to claim 47, the modified Hinoda et al does not disclose the wavelength transmitted to be in the cyan, magenta, or yellow light region, but such would have been obvious to one of ordinary skill in the art because such would allow for imaging with that specific wavelength.

With respect to claim 48, the use of a Bayer pattern is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for randomization of different color filters.

With respect to claim 49, the modified Hinoda et al disclose the filter made of silver or aluminum (see column 3, lines 26-27).

With respect to claims 50 & 53, the modified Hinoda et al discloses the vacuum evaporation as a method for depositing the metal layer.

With respect to claims 51-52, the metal layers are not disclosed to have the thicknesses claimed, but such would have been obvious to one of ordinary skill in the art in order to give the metal layers the transmissivity possible to allow a certain wavelength to pass through.

With respect to claims 54-55, the modified Hinoda et al does not explicitly state the use of a CMOS or CCD image sensor, but such would have been obvious to one of ordinary skill in the art because of the ability to capture images accurately while providing for low manufacturing cost.

With respect to claim 56, the modified Hinoda et al does not explicitly disclose apertures, but such would be obvious to one of ordinary skill in the art in order to give the metallic layers (36, 37) the ability to pass light through.

With respect to claims 57-63, the modified Hinoda et al does not explicitly disclose the apertures as such, but such would have been obvious to one of ordinary skill in the art because such would allow for a specific transmissivity of light.

With respect to claim 65, the modified Hinoda et al does not explicitly disclose apertures, but such would be obvious to one of ordinary skill in the art in order to give the metallic layers (36, 37) the ability to pass light through.

With respect to claim 66, the modified Hinoda et al discloses the vacuum evaporation as a method for depositing the metal layer.

With respect to claims 67-68, the metal layers are not disclosed to have the thicknesses claimed, but such would have been obvious to one of ordinary skill in the

art in order to give the metal layers the transmissivity possible to allow a certain wavelength to pass through.

With respect to claim 69, the modified Hinoda et al disclose the filter made of silver or aluminum (see column 3, lines 26-27).

With respect to claims 70-77, the modified Hinoda et al does not explicitly disclose the apertures as such, but such would have been obvious to one of ordinary skill in the art because such would allow for a specific transmissivity of light.

With respect to claim 80, the modified Hinoda et al does not disclose the wavelength transmitted to be in the cyan, magenta, or yellow light region, but such would have been obvious to one of ordinary skill in the art because such would allow for imaging with that specific wavelength.

With respect to claim 81, the use of a Bayer pattern is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because such would allow for randomization of different color filters.

Response to Arguments

5. Applicant's arguments with respect to claims 1-81 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J. Lee
Examiner
Art Unit 2878

PJL
January 30, 2006

Georgia Epps
Supervisory Patent Examiner
Technology Center 2800